

**REMARKS**

Claims 1-20 are pending. Claims 12-17 and 20 are canceled. By this amendment, claims 1 and 9-11 are amended.

Reconsideration of the application is respectfully requested in view of the above amendments and the following remarks. For the Examiner's convenience, Applicant's remarks are presented in the order in which they were raised in the Office Action.

**A. Claim Amendments**

Amendments to the claims are made to overcome all grounds of final rejection and for the purpose of presenting the rejected claims in better form for appeal. Claim amendments do not raise new issues and do not require any further consideration or search by the Examiner. Entry of the amendments is respectfully requested. In particular:

Claims 1 and 9-11 are amended to limit the claims to: "wherein the agent antagonizes the interaction between the molecule derived from said microorganism having the HA2 domain and the HA2-binding motif on the porphyrin containing molecule by specifically binding to one or both of (a) the HA2 domain of the molecule, and (b) the HA2-binding motif on the porphyrin containing molecule." Lack of recitation of this limitation formed the basis of rejection under 35 U.S.C. §103(a) in the Final Office Action. Support for this amendment in the form of ganets such as monoclonal antibodies, synthetic peptides, etc., is found throughout the Specification, in particular between page 28, line 20 and page 30, line 29 and the Examples.

Claims 9-11 are further amended to remove the term "prophylaxis" which is the sole basis of rejection under 35 U.S.C. §112, ¶ 1.

Claims 12-17 and 20 are canceled. These claims were previously withdrawn pursuant to a restriction requirement, and are now canceled.

**B. Restriction requirement**

Claims 12-17 and 20 are canceled. These claims were previously withdrawn pursuant to a restriction requirement, and are now canceled pursuant to 37 CFR 1.144 (MPEP § 821.01) as directed by the Examiner in the Final Office Action (page 2).

**C. Claim Rejections under 35 U.S.C. § 112**

(i) Claims 9-11 and 23-25 stand rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for treatment of an infection by a microorganism, allegedly does not reasonably provide enablement for prophylaxis of an infection by a microorganism.

In response, Applicants amend claims 9-11 to delete the term "prophylaxis" solely for the purpose of expediting prosecution. Cancellation of the subject matter of the claims is not to be construed as acquiescence to the grounds of objection or a dedication to the public and Application reserve the right to pursue claims to the cancelled subject matter in a continuation or divisional application.

In light of the deletion of the term "prophylaxis" from claim 1, this ground for rejection of claims 9-11 and 23-25, which depend from claims 9-11 is moot.

**D. Claim Rejections Under 35 U.S.C. § 103**

Claims 1-11, 18-19 and 21-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Potempa et al. in view of Progulske-Fox and Nakayama et al.

In particular the Examiner states that "the features upon which the applicant relies (i.e., interaction between HA-1 and the hemagglutinin motif) are not recited in the claim(s)." (Office Action, paragraph bridging pages 3-4). Therefore, the Examiner was not persuaded by the Applicants' prior response that the cited references do not teach or suggest an antagonist that disrupts a specific interaction between HA-2 and the hemagglutinin motif on a porphyrin ring. (page 3 of the Office Action).

In response, Applicants amend claims 1 and 9-11 to specify that inhibition is achieved by an agent "which antagonizes the interaction between the molecule derived from said microorganism

having the HA2 domain and the HA2-binding motif on the porphyrin containing molecule by specifically binding to one or both of (a) the HA2 domain of the molecule, and (b) the HA2-binding motif on the porphyrin containing molecule."<sup>1</sup>

Applicants submit that Potempa et al., Progulske-Fox and Nakayama et al do not teach or suggest an agent "which antagonizes the interaction between the molecule derived from said microorganism having the HA2 domain and the HA2-binding motif on the porphyrin containing molecule by specifically binding to one or both of (a) the HA2 domain of the molecule, and (b) the HA2-binding motif on the porphyrin containing molecule" as specified in claim 1, as amended. The references also do not teach the inhibition of interaction between a hemagglutinin peptide and binding motif of a porphyrin molecule by use of such agent. Thus each and every element of the claimed invention are not taught individually or in combination by the cited references.

Claims 9-11 are also amended to introduce a similar limitation. Since a *prima facie* case for obviousness is not supported by the cited references in light of these amendments, Applicants respectfully request withdrawal of this ground for rejection.

Secondly the Examiner states that "[c]laims 1-8 and 10 are broad claims that teach a method of treatment of an infection by an organism ... comprising the administration of an agent that has the ability to disrupt an interaction, which in effect leads to the end point of treatment of an unspecified disease." Admitting that the cited references "do not teach antagonizing of the specific interaction between HA-2 and an HA2-binding motif on a porphyrin," the Examiner asserts that they suggest administering of an agent such as a hemmagglutinin peptide component to treat infections of provide immunity.

Applicants submit that none of these references teach or suggest (i) administration of an agent which antagonizes the specific interaction between HA-2 and an HA2-binding motif on a porphyrin; and (ii) wherein the agent antagonizes the specific interaction "by specifically binding to one or both of (a) the HA2 domain of the molecule, and (b) the HA2-binding motif on the porphyrin containing molecule," as specified in claim 1, as amended.

---

<sup>1</sup> The quoted amendment is to claim 1. Corresponding amendments to claims 9-11 specify essentially the same limitation.

Progulske-Fox et al. discloses polypeptides which can be used for the production of antibodies associated with disease caused by *P. gingivalis*. Potempa et al. provides methods of protecting a mammal from periodontitis caused by *P. gingivalis* by administering an immunogenic composition comprising of at least one hemagglutinin peptide. These two references generally disclose antigens that can be used to generate antibodies which may be used to treat *P. gingivalis*. Nakayama et al. is cited by the Examiner for disclosing that HA-2 is a hemagglutinin molecule. None of these references teach an agent that specifically binds one or both of "(a) the HA2 domain of the molecule, and (b) the HA2-binding motif on the porphyrin containing molecule" and thereby "antagonize[s] the interaction between a molecule ... having an HA2 domain and an HA2-binding motif on a porphyrin containing molecule ..." as specified in claim 1, as amended. Further, direct administration of an agent that specifically antagonizes the interaction between HA2 and HA2 binding-motif on a porphyrin by specifically binding to one or both components is an efficient and significantly distinct method compared to the administration of hemagglutinin peptide components for generating an immune response as disclosed by the cited references. One of skill in the art would not have been able to determine from Potempa et al., Progulske-Fox and Nakayama et al. the effectiveness of treatment based on administration of the specific agents of the claimed invention as compared to the introduction of immunogenic compositions of the cited references.

By the amendments to claims 1 and 9-11, Applicants have introduced a limitation to specify an agent with specific binding properties that are neither taught nor suggested by Potempa et al., Progulske-Fox and Nakayama et al. by themselves or in combination. Applicants submit that in light of these amendments, a *prima facie* case for obviousness is not sustainable. Since these amendments overcome all grounds of final rejection and do not require further search or consideration by the Examiner, Applicants respectfully request entry of these amendments and withdrawal of this ground for rejection.


**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and allow this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 229752001500. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: May 26, 2006

Respectfully submitted,

By   
Shantanu Basu

Registration No.: 43,318  
MORRISON & FOERSTER LLP  
755 Page Mill Road  
Palo Alto, California 94304-1018  
(650) 813-5995